

Remarks

Claims 1-20 are pending in the application. Claims 1-14 were rejected and claims 15-20 were withdrawn. Reconsideration of the claims is respectfully requested. No new matter has been added.

Rejection Under 35 U.S.C. § 103

Claims 1-8 were rejected under § 103(a) as being unpatentable over U.S. Patent No. 4,741,078 issued to Kimura (hereinafter “Kimura ‘078”) in view of U.S. Patent No. 5,205,805 issued to Otani et al. (hereinafter “Otani ‘805”) and further in view of U.S. Patent No. 4,678,378 issued to Koczarski (hereinafter “Koczarski ‘378”).

A *prima facie* case has not been established for the rejection of claim 1. Claim 1 recites a spindle positioning apparatus for a robotic manipulator comprising “a mounting plate assembly attached to the robotic manipulator; a first spindle disposed on the mounting plate assembly in a fixed position; a second spindle disposed on the mounting plate assembly and movable with respect to the first spindle; and an actuator mechanism adapted to position the second spindle with respect to the first spindle.” In the Office Action, the Examiner stated that Kimura ‘078 merely disclosed a multi-function industrial robot and none of the other limitations of claim 1. To cure the deficiencies of Kimura ‘078, the Examiner looked to Otani ‘805 and Koczarski ‘378. The cited references, either alone or in any combination, do not disclose or suggest all the limitations of claim 1 for the following reasons.

Otani ‘805 does not disclose a first spindle disposed on a mounting plate assembly in a fixed position and a second spindle disposed on a mounting plate assembly and movable with respect to a first spindle. Instead, Otani ‘805 discloses two spindles 26 that are “supported by a support member” (see column 3, lines 29-30). Both spindles are “movable in the direction of an arrow Z as it is driven by a feed device similar to the feed device for feeding the frame 23 (see column 3, lines 27-32). Since both spindles are movable along a Z axis, neither spindle is disposed on a mounting plate assembly in a fixed position as recited by

claim 1. Moreover, there is no disclosure or suggestion of independent spindle movement since both spindles are supported by a common support member.

Koczarski '378, like Otani '805, also does not disclose a first spindle disposed on amounting plate assembly in a fixed position and a second spindle disposed on a mounting plate assembly and movable with respect to the first spindle. Instead, Koczarski '378 discloses rotatable shafts 125,126 that pass through block assemblies 120,121, respectively (see column 2, lines 51-55 and Figure 2). The block assemblies 120,121 "are fastened below the reference plane to the front ends of bars 105,106" (see column 2, lines 51-52). The bars 105,106 are threaded to engage adjustment shaft 130 (see column 3, lines 7-8). When the "adjustment shaft 130 is rotated the bars 105,106 travel at an equal linear rate toward or away from one another" (see column 3, lines 9-11). In other words, none of the rotatable shafts, block assemblies, or bars is disposed in a fixed position as recited in claim 1. Moreover, since the sets of rotatable shafts, block assemblies, and bars move simultaneously at equal linear rates relative to each other when the adjustment shaft is rotated it logically follows that there is no spindle that moves relative to a spindle that is in a fixed position (i.e., all spindles move together).

For these reasons, a *prima facie* case has not been established for the rejection of claim 1 and Applicants request that this rejection be withdrawn. Claims 2-8 depend on claim 1. Consequently, Applicants believe that a *prima facie* case has not been established for the rejection of these claims for the same reasons.

Even if a proper rejection was established for the rejection of claim 1, a *prima facie* case has not been established for the rejection of claim 3 as Otani '805 does not disclose or remotely suggest a first spindle that extends through the fixed plate and the second spindle that extends through a movable plate. Instead, Otani '805 merely discloses a frame 23 (called a fixed plate by the Examiner). Otani '805 clearly discloses that the spindles 26 are "supported by a support member" and are do not extend through the frame 23 as is clearly shown in

Figure 2 (see column 3, lines 29-30). Thus, Applicants respectfully request that the rejection of this claim be withdrawn.

Even if a proper rejection was established for the rejection of claim 1, a *prima facie* case has not been established for the rejection of claims 5 and 6 as Otani '805 does not disclose or remotely suggest a ball nut. Instead, Otani '805 merely discloses a motor 24 and a feed screw 25. Applicants further note that the Examiner did not point with particularity to any element of Otani '805 as being a ball nut (or a ball screw). Thus, Applicants respectfully request that the rejection of these claims be withdrawn.

Claims 9-14 were rejected under § 103(a) as being unpatentable over Kimura '078 in view of Otani '805 further in view of Koczarski '378. A *prima facie* case has not been established for the rejection of these claims for the reasons discussed below.

Claim 9 recites a multi-spindle positioning assembly comprising "a multi-axis robot having a manipulator arm; and a spindle positioning apparatus including: a first mounting plate attached to the manipulator arm and having a first opening; a second mounting plate movably attached to the first mounting plate and having a second opening; a first spindle extending through the first opening and attached to the first mounting plate; a second spindle extending through the second opening and attached to the second mounting plate; and an actuator mechanism adapted to position the second spindle with respect to the first spindle." In the Office Action, the Examiner stated that Kimura '078 merely discloses a multi-function industrial robot and none of the other limitations of claim 9. To cure the deficiencies of Kimura '078, the Examiner looked to Otani '805 and Koczarski '378. The cited references, either alone or in any combination, do not disclose or suggest all the limitations of claim 9 for the following reasons.

Otani '805 does not disclose a first mounting plate attached to the manipulator arm and having a first opening, a second mounting plate movably attached to the first mounting plate and having a second opening, a first spindle extending through the first opening and

attached to the first mounting plate, a second spindle extending through the second opening and attached to the second mounting plate, or an actuator mechanism adapted to position the second spindle with respect to the first spindle. In the Office Action, the Examiner called tool replacement head 55 a first mounting plate. The tool replacement head is not a first mounting plate since it does not have a first opening through which a first spindle extends. Indeed, Otani '805 does not disclose or suggest that chuck 56 (called a first spindle by the Examiner) extends through any portion of tool replacement head 55, let alone through a first opening as recited in claim 9. Moreover, Applicants also note that the Examiner was unable to point with particularity to any element of Otani '805 as being a first opening. As such, Applicants are left to guess as to what the Examiner considers to be a first opening. Applicants request that the Examiner point with particularity to a first opening in the next communication if this rejection is maintained.

Koczarski '378 does not cure the deficiencies of Otani '805 and Kimura '078 since it does not disclose a first mounting plate attached to the manipulator arm and having a first opening, a second mounting plate movably attached to the first mounting plate and having a second opening, a first spindle extending through the first opening and attached to the first mounting plate, a second spindle extending through the second opening and attached to the second mounting plate, or an actuator mechanism adapted to position the second spindle with respect to the first spindle. For instance, Koczarski '378 does not disclose or remotely suggest a second mounting plate movably attached to a first mounting plate. Instead, Koczarski '378 discloses rotatable shafts 125,126 that pass through block assemblies 120,121, respectively (see column 2, lines 51-55 and Figure 2). The block assemblies 120,121 "are fastened below the reference plane to the front ends of bars 105,106" (see column 2, lines 51-52) and spaced apart from each other. In other words, none of the rotatable shafts or block assemblies are movably attached to each other. Moreover, Applicants note that the Examiner has not pointed with particularity to any element of Koczarski '378 as being a second mounting plate or a second opening. As such, Applicants are left to guess as to what the Examiner considers to be a first opening. Applicants request that the Examiner point with particularity to these features in the next communication if this rejection is maintained.

For these reasons, Applicants respectfully believe that a *prima facie* case has not been established for the rejection of claim 9 and request that this rejection be withdrawn. Claims 10-14 depend on claim 9. Consequently, Applicants believe that a *prima facie* case has not been established for the rejection of these claims for the same reasons.

Even if a proper rejection was established for the rejection of claim 9, a *prima facie* case has not been established for the rejection of claim 10. Indeed, the Examiner presented no arguments regarding the limitations of claim 10. Thus, Applicants respectfully request that the rejection of this claim be withdrawn.

Even if a proper rejection was established for the rejection of claim 9, a *prima facie* case has not been established for the rejection of claims 11 and 12 as Otani '805 does not disclose or remotely suggest a ball nut. Instead, Otani '805 merely discloses a motor 24 and a feed screw 25. Applicants further note that the Examiner did not point with particularity to any element of Otani '805 as being a ball nut (or a ball screw). Thus, Applicants respectfully request that the rejection of these claims be withdrawn.


Even if a proper rejection was established for the rejection of claim 9, a *prima facie* case has not been established for the rejection of claim 14 since Otani '805 does not disclose or suggest first and second spindles that include first and second tools, respectively, each adapted to engage a threaded part. Indeed, there is no disclosure or suggestion of any tool that is adapted to engage a threaded part in Otani '805. Moreover, Applicants respectfully believe that tools associated with the processing of a printed circuit board are not known to include threaded parts as disclosed by the present invention. Thus, Applicants respectfully request that the rejection of this claim be withdrawn.

Conclusion

Applicants have made a genuine effort to respond to the Examiner's objections and rejections in advancing the prosecution of this case. Applicants believe all formal and substantive requirements for patentability have been met and that this case is in condition for allowance, which action is respectfully requested.

Respectfully submitted,

ISAAC ZOLOTAREV et al.

By 
Matthew M. Mietzel
Reg. No. 46,929
Attorney for Applicant

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BROOKS KUSHMAN P.C.
1000 Town Center, 22nd Floor
Southfield, MI 48075-1238
Phone: 248-358-4400
Fax: 248-358-3351